

THAT WHICH IS CLAIMED:

1. An apparatus for thermoforming an article of fiber packaging from a fibrous slurry, comprising:

5 first and second co-operable dies being adapted to receive the fibrous
slurry therebetween;
at least one thermal mass being mounted to at least one of said first and
second dies;
at least one radio-frequency induction coil being mounted to at least one of
said first and second dies; and
10 at least one power source being in electrical communication with said at
least one radio-frequency induction coil to supply radio-frequency energy thereto and
wherein said at least one radio-frequency induction coil is adapted to induce an
electromagnetic field within said at least one thermal mass to thereby heat said respective
die and thermoform the fibrous slurry into the article of fiber packaging.

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2. An apparatus according to Claim 1 wherein said at least one radio-frequency induction coil comprises:

at least one copper tube; and
an epoxy shell at least partially encasing said at least one copper tube.

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3. An apparatus according to Claim 2 wherein said at least one radio-frequency induction coil is water-cooled.

4. An apparatus according to Claim 1 wherein at least one of said first
25 and second dies comprises at least one sensor for measuring the temperature of said
respective die, said sensor being in operable communication with said power source for
automatically controlling the temperature of said respective die.

11. An apparatus for thermoforming an article of fiber packaging from a fibrous slurry, comprising:

a forming station; and

at least one press station, comprising:

5 first and second co-operable dies being adapted to receive the fibrous slurry therebetween;

at least one thermal mass being mounted to at least one of said first and second dies;

10 at least one radio-frequency induction coil being mounted to at least one of said first and second dies; and

at least one power source being in electrical communication with said at least one radio-frequency induction coil to supply radio-frequency energy thereto and wherein said at least one radio-frequency induction coil is adapted to induce an electromagnetic field within said respective at least
15 one thermal mass to thereby heat said respective die and thermoform the fibrous slurry into the article of fiber packaging.

12. An apparatus according to Claim 11 wherein said at least one radio-frequency induction coil comprises:

20 at least one copper tube; and

an epoxy shell at least partially encasing said at least one copper tube.

13. An apparatus according to Claim 12 wherein said at least one radio-frequency induction coil is water-cooled.

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14. An apparatus according to Claim 11 wherein at least one of said first and second dies comprises at least one sensor for measuring the temperature of said respective die, said sensor being in operable communication with said power source for automatically controlling the temperature of said respective die.

15. An apparatus according to Claim 11 wherein each of said first and second dies defines a base and a pair of sides, said at least one thermal mass being mounted to one of said bases of said respective die, said at least one radio-frequency induction coil being mounted to one of said bases of said respective die.

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16. An apparatus according to Claim 11 wherein each of said first and second dies defines a base and a pair of sides, said at least one thermal mass being mounted to one of said sides of said respective die, and said at least one radio-frequency induction coil being mounted to one of said sides of said respective die.

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17. An apparatus according to Claim 11 further comprising a member for moving said first die towards and away from said second die.

18. An apparatus according to Claim 11 wherein said first and second dies are formed of aluminum.

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19. An apparatus according to Claim 11 wherein said at least one thermal mass comprises a steel plate.

20. An apparatus according to Claim 19 wherein said energy source supplies radio-frequency energy at between approximately 90 to 110 kHz.

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21. A method of forming an article of fiber packaging from a fibrous slurry, comprising:

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positioning a layer of slurry between first and second dies; and
supplying radio-frequency energy to at least one induction coil mounted to at least one of the first and second dies to thereby heat the respective die and thermoform the fibrous slurry into the article of fiber packaging.

22. A method of forming an article of fiber packaging as defined in Claim 21 further comprising:

inducing an electromagnetic field in at least one thermal mass mounted to at least one of the first and second dies; and

5 conducting heat from the at least one thermal mass to the respective die.

23. A method of forming an article of fiber packaging as defined in Claim 21 further comprising cooling the at least one induction coil with water.

10 24. A method of forming an article of fiber packaging as defined in Claim 21 further comprising:

measuring the temperature of the heated die; and

automatically adjusting the radio-frequency energy supplied to the at least one induction coil to thereby modify the temperature of the respective die.

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25. A method of forming an article of fiber packaging as defined in Claim 21 further comprising:

moving the first die towards the second die before said supplying step; and

moving the first die away from the second die after said supplying step.

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26. A method of forming an article of fiber packaging from a fibrous slurry, comprising:

positioning a layer of slurry between first and second dies; and

inducing an electromagnetic field within at least one thermal mass

25 mounted to at least one of the first and second dies using radio-frequency energy to thereby heat the respective die and thermoform the fibrous slurry into the article of fiber packaging.

27. A method of forming an article of fiber packaging as defined in Claim 26 further comprising:

measuring the temperature of the heated die; and
automatically adjusting the electromagnetic field within the at least one
5 thermal mass to thereby modify the temperature of the respective die.

28. A method of forming an article of fiber packaging as defined in Claim 26 further comprising:

moving the first die towards the second die before said supplying step; and
10 moving the first die away from the second die after said supplying step.

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